UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL HEALTH AND ENVIRONMENTAL EFFECTS
RESEARCH LABORATORY
ATLANTIC ECOLOGY DIVISION
27 TARZWELL DRIVE • NARRAGANSETT, RI 02882

OFFICE OF
RESEARCH AND DEVELOPMENT

DATE: February 2, 1997

MEMORANDUM

SUBJECT: Technical Review of Modeling Report for EPA Region 9 - American Samoa Ocean Disposal Site for Fish Waste (comments on second set of author's responses).

FROM: Mohamed A. Abdelrhman, Research Physical Scientist
Ecosystems Analysis and Simulation Branch, AED

TO: Pat Young, American Samoa Program Manager, Region 9
Allan Ota, Ocean Dumping Program, Region 9

CC: Steve Schimmel, Branch Chief, EAS, AED

I reviewed the second set of the author's comments dated January 24, 1997. Regardless of the presented side comments and personal assessments presented by the author, which I will not comment on, only three issues are discussed here:

1) The use of existing field monitoring data to validate model results is accepted

2) The confusion about the value of C_o should be fixed. The use of dilution is accepted.

3) Dilution values based on the central location of the dump site (1.5 n mi) must be included in the main text (e.g., Tables 4.1) unless justification is presented for using a location close to the site boundary (the 2.5 n mi location). At 1.5 n mi, farfield dilution reduces by 30-40% and the final concentration is 60-70% higher than at 2.5 n mi.

M. Abdelrhman
ENVIRONMENTAL PROTECTION AGENCY
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Alian Ota :
Keep or Recycle.
I think you have this.

OFFICE OF
RESEARCH AND DEVELOPMENT

DATE: September 3, 1996

MEMORANDUM

SUBJECT: Technical Review of Modeling Report for EPA Region 9 - American Samoa Ocean Disposal Site for Fish Waste

FROM: Mohamed A. Abdelrhman, Research Physical Scientist
Ecosystems Analysis and Simulation Branch, AED

Mohamed A. Abdelrhman

THROUGH: Steve Schimmel, Acting Branch Chief, EAS, AED

TO: Norman Lovelace, Chief
Office of Pacific Island Programs

This technical review of the report *"Joint Cannery Ocean Dumping Studies in American Samoa"* is limited to the modeling aspects of the report namely:
Chapter 1: Introduction
Chapter 3: Model Evaluation
Chapter 4: Conclusions and Recommendations
Appendix 2: Study Plan
Appendix 8: Calculation of Entrainment Adjustment
Appendix 9: FEIS Model Description
Appendix 10: Farfield Model Output
Note: The material in Appendixes 8 and 9 are misplaced in the report, and the two appendixes are cited wrongly in the report (e.g., pages 3-1 and 3-8) .

The report describes results of bioassay testing and modeling of fish processing wastes. Overall, the approach used is based on mathematical modeling, which implements a set of mathematical equations to solve for unknown values. The information presented in the report is not adequate to reproduce any of the stated results due to one or more of the following: (1) incomplete set of mathematical equations, (2) lack of values for parameters , coefficients, or constants in some equations, and (3) unknown physical dimensions (units) of parameters , coefficients, or constants in some equations. I was able to reproduce *dumping dilution*, however, the reported values are overestimated (e.g., by 20% for discharge flow of 1400 gpm using one propeller) due to an error in velocity calculations (see below). This error will be magnified for two propellers and will be magnified further when multiplied by *nearfield* and *farfield dilutions*. I was not able to reproduce the stated dilution values for *nearfield dilution* from the givings in the report. Accordingly, the report must be completed and corrected then resubmitted for re-evaluation. The following comments point at areas which need improvement in the report. Other editorial comments are marked on the attached copied pages from the report.

Some of the issues mentioned in the Study Plan (Appendix 2) were not covered in the report namely: (1) sensitivity analysis of model results to model parameters (e.g., lateral diffusion coefficient, A, vertical diffusion parameter, K_v), and effluent characteristics (density and settling speed); (2) validation of results so that predictions reflect reality; and (3) graphical representation of model results (contour plots, graphs, etc.). Examination of the effect of effluent characteristics was totally missing from the report.

A major inconvenience experienced while reading the report was the unsystematic presentation of modeling procedure and formulation in the main body of the report. The reader has to go back and forth between the main text and Appendix 9 for evaluation of the reproduced farfield model in Chapter 3, the farfield model formulation in Appendix 9, and the immediate and nearfield formulation in the main text in Chapter 3. The current model (CH2MHILL model) should be presented as a complete (stand-alone) model. Another inconvenience was that the report lacks graphical representations to illustrate the developed methods, formulation, important parameters, and results. Also, physical units were not mentioned for parameters, coefficients, and constants in all equations. Moreover, inconsistent units were used in different sections of the report and appendixes (e.g., m, ft; ft^3/sec, gpm; ft/sec, cm/s, knot; cm2/s). These inconveniences must be eliminated from the report.

In more than ten places (marked by !) in the report "conservative" or "conservatism" was used to indicate that the modeled dilution would be under estimated. However, no scientific justification was presented for this judgement, or where? and when? this judgement is true. My calculations (see below) indicate that the reported values were over-estimated by at least 20%. Unless proper justification is presented for the claimed conservatism it can not be accepted.

The calculation for entrainment (Appendix 8, see note above) are questionable. Plume width, b, is defined as b=0.096 x. First, this linear relationship is not mentioned or justified in any part of the report. Second, values in the theta1-column indicate the use of b as half plume width (not the whole width). Third, the effect of settling speed is ignored by the use of x instead of x', and the effect of vertical diffusion is also ignored, although these simplifications may be valid where the momentum jet from the propellers is dominant, they need to be stated. Forth, based on the presented figure, values in the theta2-column are totally wrong. Theta2 should be decreasing (not increasing) as x and b increase. Finally, the number of significant decimal digits for theta1 and theta2 are unacceptable for accurate calculations. These errors will affect values in the last two columns in the table presented in the appendix (table number and caption are missing) and the graph for Clean Entrainment vs Distance. These errors will also affect values in the last two columns (Entrainment Coefficient and Adjusted Dilution) in Table 3.3 for nearfield dilution.

The *dumping dilution* is based on the value of V_o. The presented formulation ship [$V_o = (1+b)V_A$] indicates that the value of V_o is relative to the ship which moves at the speed V_A. However, speed of the point-source (the ship) is irrelevant to jet mixing and dilution because mixing depends on the value of jet velocity relative to the ambient fluid. Hence, the velocity of propeller flow should be relative to the ambient fluid, i.e., $V_o = bV_A$. Based on the presented relationships, units, and vessel characteristics (page 3-6) for the case of discharge rate of 1400 gpm and vessel speed 10 knots, I calculated the dilution for a single propeller as 331.17:1, which is over estimated by ~20% by the value given in the report (398.9:1). Thus, reported *dumping dilution* values must be revised as well as the relevant values reported in the last three columns in Tables 4.1 and 4.2. Other values in these two tables must also be revised as indicated on the attached copied pages from the report. *Dumping dilution* does not depend on summer or winter, why are values different for the same loading, vessel speed, and ocean currents in Table 4.1 or Table 4.2?! If the edge of the dumping zone is at 2.5 n mi and the distance to the closest reefline or shoreline is 5 n mi, how can *farfield dilution* for the latter be less than that for the former for the same conditions?! Why are *nearfield dilution* values constant for different loadings (i.e.,

different V_oD_o) in Table 4.1 or Table 4.2 ?!

What is referred to as "entrainment coefficient" or "clean entrainment coef ' in the report represents change in plume surface area due to the encounter of water surface or the mer f two plumes. This is not the theoretically known entrainment coefficient which relates the rate of e d mass of ambient fluid (entrainment velocity * plume surface area) into the plume to the rate of mass fl within the plume (plume velocity * cross-section area). The coefficient is better be given a different na avoid misconception and to reflect its true physical meaning.

The justification presented in the report for using dilution at 1000 feet as repres e for "nearfield dilution" is weak. The nearfield ends where passive diffusion (of ambient fluid) is co ble to turbulent diffusion within the plume. This may happen before or after the assumed 1000 feet. A r istifiable distance should be used to define nearfield dilution. Also, the plume should have a smooth tr n between the end of the nearfield to the beginning of the farfield with respect to: dimension, mass rvation, and momentum conservation. These issues were not tackled in the report. For example, doe lume width at the chosen 1000 ft distance match the previously used dimension (twice the turning ra the ship, 370.5 m) at the beginning of the farfield? If not, what value is used for the farfield?

It is mentioned in the report that the vessel will circle in the dump site as it d ges the waste. Meanwhile plume calculations were carried to 4-5 n. mi. Would there be any overlap of me with itself during the discharge? What effect would this overlap have on dilution calculations?

The following concerns need to be dealt with in the report:

- Physical units of all parameters, coefficients, and constants in the equati st be mentioned
- Physical units must be consistent throughout the report
- Values of the constants I_1, I_2, and α (page 3-7) must be mentioned to allo oduction of the calculated "nearfield dilution" in Table 3.3 column 5.
- The value of Q_o needs to be mentioned, is it the pipe discharge? Or the d e after *dumping dilution*? If the latter is true, what is the area involved with V_o to calculate Q_o. Is V_o on -7 the same as V_o on page 3-6? Calculation of dumping dilution (e.g., 398.9:1) from velocity (V_o) nee e stated explicitly in page 3-7.
- The equation for θ on page 3-2 is incorrect, it should read $\theta=\tan^{-1}(w_s/u)$
- x and x' (page 3-2) must be defined

CC: Norm Rubinstein, Acting Director, AED
Brian Melzian, Program Operations, AED
Edward E. Dettmann, Research Environmental Scientist, AED
Allan Ota, Ocean Dumping Program, Region 9
Janet Hashimoto, Region 9

Allan

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 9

75 Hawthorne Street
San Francisco, CA 94105-3901

December 30, 1996

Steve L. Costa
Project Manager
CH2M Hill
P.O. Box 12681
Oakland, CA 94607-4046

Re: Review of CH2M Hill Responses to EPA's Comments on the Joint Cannery Ocean Dumping Studies in American Samoa, July 1996

Dear Steve:

Dr. Mohamed Abdelrhman of EPA's Narragansett research laboratory reviewed your responses to his comments on the ocean disposal study and his comments are attached. In general his responses are favorable, however, some disagreements still exist. I understand you have been working on revising the report and final issuance is awaiting our review and approval of your responses. As there are still some outstanding issues, I suggest you review Dr. Abdelrhman's comments, and if further discussion is needed, please contact me and I can arrange a conference call for us to discuss these issues.

I can be reached at 415/744-1594. As you know, the existing cannery ocean disposal permits have been extended until April to allow us to thoroughly review all the studies and data provided.

Sincerely,

Pat Young

Pat Young
American Samoa Program Manager

Enclosure

cc: Sheila Wiegman, ASEPA
Jim Cox, Van Camp Seafoods, Inc.
William D. Perez, VCS Samoa Packing Company
Norman Wei, StarKist Foods, Inc.
Barry Mills, StarKist Samoa, Inc.

bcc: Allan Ota, WTR-2
Mike Lee, CMD-5

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

November 19, 1996

MEMORANDUM

SUBJECT: Technical Review of Modeling Report of the American Samoa Ocean Disposal Site for Fish Waste

FROM: Norman L. Lovelace, Chief
Office of Pacific Island Programs

TO: Mohamed A. Abdelrhman, Research Physical Scientist
Ecosystems Analysis and Simulation Branch, AED

Please accept my apologies for not acknowledging receipt of your technical comments on the report Joint Cannery Ocean Dumping Studies in American Samoa. Your review, conducted at our request, was very useful, as Region 9 does not have the technical expertise to review such documents, and we appreciated the quick response time. We should have acknowledged receipt of your comments in September, however, we had assumed your involvement would include review of the response by CH2M Hill to your comments. Perhaps that was an incorrect assumption on our part for which we apologize, and we would appreciate your continued assistance in this review.

Upon receipt of your comments, we reviewed them and forwarded them to Steve Costa, author of the study, for his review, response and revision of the study. We recently received his response (attached), in which he addresses your comments and proposes changes to the report. However, he states that in order to respond in more detail to some of your comments, he needs more information from you. Additionally, he will issue a revised report upon our approval of his proposed changes and responses.

Thus, in response to your memo of October 30th, we certainly would like to be able to continue receiving technical support from the Atlantic Ecology Division, as well as from other EPA research laboratories which have expertise in areas that Region 9 does not. If you are able to continue to assist us in the review of this study it would be much appreciated. My staff, Pat Young, American Samoa Program Manager (415) 744-1594 and Allan Ota of the Ocean Disposal Team (415) 744-1980, will contact you soon to discuss this. Please call me at (415) 744-1599 if I can be of assistance.

cc: Steve Schimmel, Acting Branch Chief, EAS, AED

bc: Janet Hashimoto

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OFFICE OF
RESEARCH AND DEVELOPMENT

DATE: July 28, 1997

MEMORANDUM

SUBJECT: Final Technical Review of Modeling Report for EPA Region 9 - American Samoa Ocean Disposal Site for Fish Waste (comments on the Revised Report dated June 1997).

FROM: Mohamed A. Abdelrhman, Research Physical Scientist
Ecosystems Analysis and Simulation Branch, AED

TO: Pat Young, American Samoa Program Manager, Region 9
Allan Ota, Ocean Dumping Program, Region 9

CC: Steve Schimmel, Branch Chief, EAS, AED

I reviewed the revised version of the mentioned report. The report is much better with the newly added material of Section 4 and Appendix 11.

My major concern is the *Nearfield Dilution* in the Revised Model Formulation and Predictions Section. This section was vague with unknown coefficients and was not cited in the first version of the report. The cited reference (Sobey 1994, a corse class notes) is inaccessible to me and to most readers. An appendix including the mathematical derivation of U_d and Q_x equations (page 3-9) must be added to justify the use of these equations. However, these equations produce dilution values which are independent of plume physics for a specific propeller area, A_o! The same dilution values exist regardless of: (1) ship velocity, V_A, (2) plume velocity, U_d, (3) plume flow rate, Q_x, and (4) initial discharge velocity, V_o (with respect to ambient current). The presented *Nearfield Dilution* is just a linear function of distance, x, controlled by a proportionality constant α=0.096 and other constants (I_1 and I_2). The direct effect of this linear presentation is a dilution factor of 42 (at the arbitrarily chosen distance of 1000 ft), regardless of the disposal scenario. This is the reason why velocity and flow corrections which took place in the new version of the report did not change any of the previously calculated values (compare Table 5.3 in the new version with Table 3.3 in the old version). The *Nearfield Dilution* treatment is equivalent to stating "It is arbitrarily assumed that *Dumping Dilution* will be increased by a factor of 42 at 1000 ft for any discharge operation using the same A_o". This added dilution factor for *Nearfield Dilution* should be excluded and only *Dumping Dilution* and *Farfield Dilution* be used in modeling (unless proper justification is presented).

The following inconsistencies are also related to *Nearfield Dilution*, but will not have any impact on

the results due to the reason mentioned above. In Tables 3.3 and 3.4, the presented numbers for the calculations of initial velocity and initial flow through propeller with respect to current were directly calculated by subtracting ship's speed from the initial velocity calculated using the Propeller Momentum Theory (Liou and Herbich, 1976), which is correct, but the following inconsistencies exist:

o In these tables, numbers in the right column for Centerline Plume Velocity with respect to ship when calculated on the same basis, i.e., with respect to current, the presented numbers do not compare with the numbers in the left column form "Round Momentum Jet Theory (Sobey, 1994)" and the calculated numbers indicate reversal in velocity direction. In other words, in a quiescent ambient fluid, subtracting ship's speed, V_A, from the right column produces positive velocities (away from ship) from x=25 to 100 ft, all other velocities from x=200 to x=∞ will be negative (towards ship)!!

o Which formulation is correct for *Nearfield Dilution*? From a first look at the centerline velocities by both Leu&Herbich and Sobey, they are almost exactly similar (in notation, but not in physical meaning):

$$U_{CL(Sobey)} = 6.14\, D_o\, V_{o(Soby)} / x$$

$$U_{CL(Leu)} = 6.17\, D_o\, V_{o(Leu)} / x$$

but $V_{o(Soby)} \neq V_{o(leu)}$ because $V_{o(leu)}=V_A$+jet velocity with respect to ambient fluid, while $V_{o(Soby)}$ = jet velocity with respect to ambient fluid and does not include ship's velocity.

Other comments:

1. The equation for θ on page 3-2 (and in Appendix 2, Page II-9) is still incorrect (see my fist memo), it should read $\theta=\tan^{-1}(w_s/u)$.

2. The equation for x' on page 3-2 is incorrect, it should read $x'=x/\cos(\theta)$.

3. The physical meaning of the definitions of H (Memo (2)) and H/4 on page 3-3 are still unclear and inconsistent with the definition in FEIS page B-7 and the 10 ft propeller distance in the figure in Appendix 9. If adding a sketch is too much for the report, then please fax me ((401) 782 3030) the sketch to understand the relation between H, H/4, C_{max}, and the surface.

4. The relative speed of the vessel, V, has two inconsistent definitions before and after the equation for C_o on page 3-4. In one definition it is the speed relative the bottom while the other it is relative to the receiving water.

5. The statements at the end of page 3-4 regarding C_o are incorrect. C_o has dimensions of concentration and the constant 1.814 is dimensionless.

6. Use consistent notation. Q_p and Q_o (pages 3-7, 3-8, and 3-23) refer to the same thing.

7. An equation indicating that $D_N = D_N * CP$ should be added after the equation for D_N on Page 3-9 to complete the calculation.

8. In the Table of Appendix 9, theta2 values have no physical meaning before the merged plumes hit the surface (at 130 ft). The presented equations cover only the case when the intersection of the merged plumes hit the surface, but not the other two cases when the plumes merge before hitting the surface, and after hitting the surface but before their intersection reaches the surface. The starts of the text lines of the figure showing plumes are lost.

9. On page 4-5, you mean Figure 3.3 not Figure 3.2.

Recommendation:
Region 9 should not accept the report without proper justification for the use of Nearfield Dilution factor of 42.

Mohammed A. Abdelrhman
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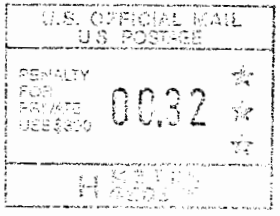

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Allan

* For Army COE contact, do you know whether it should be sent to the Envir. Division (which reviews EISs) or the Operations Branch (which deals w/ dredging permits). If the latter, then send to:

Linda Hihara-Endo
Chief, Operations Branch etc.

? means I have no idea why these folks are on the mailing Allan — do then automatic "cc's on all OD perm

Mailing list + fax #s.

- ASEPA fax is 9-011-684-633-5801 —

✓ mean I can fax the Samoa ~~test~~ cc's

/ do if you'd like.

Pat

For EI ... re changed since the permit was ... sure why these folks are on the mailing list.

Pat

5/29/96

Allan

€ For Army COE contact, do you know whether it should be sent to the Envir. Division (which reviews EIS's) or the Operations Branch (which deals w/ dredging permits). If the latter, then send to:

Linda Hihara-Endo
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? means I have no idea why these folks are on the mailing list. Are they automatic "cc's on all OD permits. Consider deleting.

✓ means keep on list

/ delete

For EPA names/addresses - ~~they may~~ people may have changed since the permit was issued. I'm not sure why these folks are on the mailing list.

Pat

5/29/96

Revised 5/29/96 mg

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↳ she ~~sent~~ commented on last permit

11/95

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VCS Permit

MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT § 102
OCEAN DUMPING PERMIT

PERMIT NUMBER AND TYPE: OD 93-02 Special

EFFECTIVE DATE: Sepetmber 1, 1993

EXPIRATION DATE: August 31, 1996

PERMITTEE:
VCS Samoa Packing Company, Inc.
P.O. Box 957
Pago Pago, American Samoa 96799

WASTE GENERATOR:
VCS Samoa Packing Company, Inc.
P.O. Box 957
Pago Pago, American Samoa 96799

WASTE GENERATED AT:
VCS Samoa Packing Company, Inc.
P.O. Box 957
Pago Pago, American Samoa 96799

PORT OF DEPARTURE: Pago Pago Harbor, American Samoa

WASTE TRANSPORTER:
FV TASMAN SEA
Blue North Fisheries, Inc.
1130 N.W. 45th Street
Seattle, Washington 98107-4626

A special ocean dumping permit is being issued to VCS Samoa Packing, Inc. because the Regional Administrator of EPA Region IX has determined that disposal of fish processing wastes off American Samoa meets EPA's ocean dumping criteria at 40 C.F.R. Parts 227 and 228. For this permit, the term "fish processing wastes" shall refer to Dissolved Air Flotation (DAF) Sludge, Precooker Water and Press Water generated at the permittee's plant in Pago Pago, American Samoa; or any combination of the three waste streams pumped from VCS Samoa Packing's onshore holding tanks into the ocean disposal vessel for transportation to the ocean disposal site.

This special permit authorizes the transportation and dumping into ocean waters of fish processing wastes as described in the special conditions section pursuant to the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 (33 U.S.C. § 1401 *et seq.*) as amended (hereinafter referred to as "the Act"); regulations issued thereunder; and the terms and conditions stated below.

This MPRSA Special Permit does not contain any information collection requirements subject to Office of Management and Budget review under the Paper Work Reduction Act of 1980 (44 U.S.C. § 3501 *et seq.*). This determination has been made because the permit does not require data collection by more than 10 persons.

1. GENERAL CONDITIONS

1.1. Operation under this special ocean dumping permit shall conform to all applicable federal statutes and regulations including, but not limited to, the Act, the Marine Plastic Pollution

Research and Control Act of 1987 (P.L. 100-220), the Clean Water Act (33 U.S.C. § 1251 *et seq.*), and the Ports and Waterways Safety Act (33 U.S.C. § 1221 *et seq.*).

1.2. All transportation and dumping authorized herein shall be undertaken in a manner consistent with the terms and conditions of this permit. VCS Samoa Packing, Inc. (hereafter referred to as "the permittee") shall be liable for compliance with all such terms and conditions. The permittee shall be held liable under § 105 of the Act (33 U.S.C. § 1415) if any permit violations occur. During disposal operations when the permittee's fish processing wastes are loaded aboard the disposal vessel in holding tanks, either separately or combined with similar fish processing wastes from other permittees authorized to use the ocean disposal site defined in Special Condition 2.2, the permittees shall be held individually liable under § 105 of the Act (33 U.S.C. § 1415) if a permit violation occurs. If a permit violation occurs during the transportation and disposal of fish processing wastes, the waste transporter may also be liable for permit violations.

1.3. Under § 105 of the Act, any person who violates any provision of the Act, 40 C.F.R. Parts 220 through 228 promulgated thereunder, or any term or condition of this permit shall be liable for a civil penalty of not more than $50,000 per day for each violation. Additionally, any knowing violation of the Act, 40 C.F.R. Parts 220 through 228, or the permit may result in a criminal action being brought with penalties of not more than $50,000 or one year in prison, or both. Violations of the Act or the terms and conditions of this permit include but are not limited to:

1.3.1. Transportation to, and dumping at any location other than that defined in Special Condition 2.2 of this permit;

1.3.2. Transportation and dumping of any material not identified in this permit, more frequently than authorized in this permit, or more than the quantities identified in this permit, unless specifically authorized by a written modification hereto;

1.3.3. Failure to conduct permit monitoring as required in Special Conditions 3.1, 3.3.1, 4.7 and 5.1; or

1.3.4. Failure to file reports on fish processing wastes and disposal site monitoring reports as required in the Special Conditions.

1.4. Nothing contained herein shall be deemed to authorize, in any way, the transportation from the United States for the purpose of dumping into the ocean waters, the territorial sea, or the contiguous zone, the following materials:

1.4.1. High-level radioactive wastes;

1.4.2. Materials, in whatever form, produced for radiological, chemical, or biological warfare;

1.4.3. Persistent synthetic or natural materials which may float or remain in suspension in the ocean; or

1.4.4. Medical wastes as defined in § 3(k) of the Act.

1.4.5. Flotables, garbage, domestic trash, waste chemicals, solid waste, or any materials prohibited by the Act or the Marine Plastic Pollution Research and Control Act.

1.5. Nothing contained herein shall be deemed to authorize, in any way, violation of applicable American Samoa Water Quality Standards. The following water quality standards apply:

Table 1. 1989 American Samoa Water Quality Standards: Oceanic Waters [§24.0207(g)(1-7)].

Parameter	Median Not to Exceed the Given Value
Turbidity	0.20 NTU
Total Phosphorus	11.0 µg-P/L
Total Nitrogen	115.0 µg-N/L
Chlorophyll *a*	0.18 µg/L
Light Penetration Depth	150 feet, to exceed the given value 50% of the time.
Dissolved Oxygen	Not less than 80% of saturation or less than 5.5 mg/L. If the natural level of dissolved oxygen is less than 5.5 mg/L, then the natural dissolved oxygen level shall become the standard.
pH	The pH range shall be 6.5 to 8.6 pH units and within 0.2 pH units of the level which occurs naturally.

1.6. After notice and opportunity for a hearing, this permit may be revised, revoked or limited, in whole or in part, subject only to the provisions of 40 C.F.R. §§ 222.3(b) through 222.3(h) and 40 C.F.R. § 223.2, as a result of a determination by the Regional Administrator of EPA that:

1.6.1. The cumulative impact of the permittee's dumping activities or the aggregate impact of all dumping activities in the dump site designated in Special Condition 2.2 should be categorized as Impact Category I, as defined in 40 C.F.R. § 228.10(c)(1);

1.6.2. There has been a change in circumstances regarding the management of the disposal site designated in Special Condition 2.2;

1.6.3. The dumping authorized by the permit would violate applicable American Samoa Water Quality Standards;

1.6.4. The dumping authorized can no longer be carried out consistent with the criteria defined at 40 C.F.R. Parts 227 and 228;

1.6.5. The permittee violated any term or condition of the permit;

1.6.6. The permittee misrepresented, or did not disclose all relevant facts in the permit application accurately; or

1.6.7. The permittee did not keep records, engage in monitoring and reporting activities, or to notify appropriate officials in a timely manner of the transportation and dumping activities as specified in any condition of this permit.

1.7. The permittee shall ensure always that facilities, including any vessels associated with the permit, are in good working order to achieve compliance with the terms and conditions of this permit. During all loading operations, there shall not be a loss of fish processing wastes to any waterway. During transport to the disposal site, there shall not be a loss of fish processing wastes to Pago Pago Harbor or the ocean.

1.8. Any change in the designated fish processing waste transporter may be made at the discretion of the Regional Administrator or his delegate. A written request for such a transfer shall be made by the permittee at least thirty (30) days before the requested transfer date. Written approval by the EPA Regional Administrator must be obtained before such a transfer occurs.

1.9. The permittee shall allow the EPA Regional Administrator, the Commander of the Fourteenth U.S. Coast Guard District (USCG), the Director of the American Samoa Environmental Protection Agency (ASEPA), and/or their authorized representatives to:

1.9.1. Enter into, upon, or through the permittee's premises, vessels, or other premises or vessels under the control of the permittee, where, or in which, a source of material to be dumped is located or in which any records are required to be kept under the terms and conditions of this permit or the Act;

1.9.2. Have access to and copy any records required to be kept under the terms and conditions of this permit or the Act;

1.9.3. Inspect any dumping equipment, navigational system equipment, monitoring equipment or monitoring methods required in this permit;

1.9.4. Sample or require that a sample be drawn, under EPA, USCG, or ASEPA supervision, of any materials discharged or to be discharged; or

1.9.5. Inspect laboratory facilities, data, and quality control records required for compliance with any condition of this permit.

1.10. Material which is regulated by this permit may be disposed of, due to an emergency, to safeguard life at sea in locations or in a manner that does not comply with the terms of this permit. If this occurs, the permittee shall make a full report, according to the provisions of 18 U.S.C. § 1001, within 15 days to the EPA Regional Administrator, the USCG and the ASEPA describing the conditions of this emergency and the actions taken, including the location, the nature and the amount of material disposed.

1.11. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of rights, nor any infringement of Federal, State or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent required by applicable law for the activity authorized.

1.12. This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities, or, except as authorized by this permit, the conduct of any work in any navigable waters.

1.13. Unless otherwise provided for herein, all terms used in this permit shall have the meanings assigned to them by the Act or 40 C.F.R. Parts 220 through 228, issued thereunder.

2. SPECIAL CONDITIONS - DISPOSAL SITE AND FISH PROCESSING WASTE CHARACTERIZATION

Special conditions are necessary to define the length of the permit period, identify the disposal site location, describe fish processing waste streams and define maximum permitted limits for DAF Sludge, Precooker Water and Press Water.

2.1. Location of the Waste Generator and Duration of the Permit

2.1.1. The material to be dumped shall consist of fish processing wastes, defined in Special Conditions 2.3 and 2.4, generated at the permittee's fish cannery in Pago Pago, American Samoa.

2.1.2. This permit shall become effective on September 1, 1993 and it shall expire three years from the effective data at midnight on August 31, 1996.

2.2. Location of Disposal Site

Disposal of fish processing wastes generated at the location defined in Special Condition 2.1.1 shall be confined to a circular area with a 1.5 nautical mile radius, centered at 14° 24.00' South latitude by 170° 38.30' West longitude.

2.3. Description of Fish Processing Wastes

2.3.1. During the term of this permit, and according to all other terms and conditions of this permit, the permittee is authorized to transport and dispose a maximum of 200,000 gallons per day of fish processing wastes pumped from a storage tank on the permittee's premises. The fish processing wastes pumped from the permittee's storage tank are authorized for disposal at the designated ocean disposal site. Fish processing wastes pumped into the permittee's onshore storage tanks shall not exceed the following amounts:

Table 2. Volumes of Fish Processing Wastes Generated Each Day by VCS Samoa Packing and Pumped into a Storage Tank before Loading into the Ocean Disposal Vessel.

Fish Processing Waste	Maximum Volume Generated (gallons/day)
Dissolved Air Flotation (DAF) Sludge	60,000
Precooker Water	100,000
Press Water	40,000
Maximum Daily Volume Generated and Pumped into a Storage Tank before Loading into the Disposal Vessel	??

2.4. Fish Processing Waste Stream Limits

Table 3. Limits for DAF Sludge, Precooker Water and Press Water.

Physical or Chemical Parameter (units)[a]	DAF Sludge	Precooker Water	Press Water
Total Solids (mg/L)	461,790	115,180	381,510
Total Volatile Solids (mg/L)	455,560	84,450	409,310
5-Day BOD (mg/L)	349,350	64,650	365,550
Oil and Grease (mg/L)	395,700	11,180	165,860
Total Phosphorus (mg/L)	3,790	1,850	2,950
Total Nitrogen (mg/L)	21,820	12,830	35,100
Ammonia (mg/L)	3,470	410	830
pH (pH units)	4.8 to 7.0	5.5 to 7.0	5.5 to 7.0
Density (g/mL)	0.86 to 1.05	0.95 to 1.06	0.96 to 1.06

a = All calculated values were rounded to the nearest 10, except density and pH ranges.

2.4.2. Permitted Maximum Concentrations for each type of fish processing waste stream were calculated based on an analysis of historical data from the permittee's previous Special Ocean Dumping Permit, number OD 90-01. The calculations followed EPA's recommended procedure for determining permit limits as defined in the EPA document titled: "Guidance Document for Ocean Dumping Permit Writers" (January 30, 1988). EPA Region IX will periodically review these limits during the permit to evaluate the accuracy of the limits. If revisions are necessary, EPA Region IX will make changes according to the authority defined in the Ocean Dumping Regulations at 40 C.F.R §§ 223.2 through 223.5.

2.4.3. The Permitted Maximum Concentrations, density range and pH range listed above, shall not be exceeded at any time during the term of this permit.

3. SPECIAL CONDITIONS - ANALYSIS OF FISH PROCESSING WASTES

Compliance with the permitted maximum concentrations defined in Special Condition 2.4 shall be determined by monthly monitoring of **each of the fish processing waste streams.** Additional analyses of fish processing wastes and reporting requirements are defined in this section. Any fish processing waste stream sampling dates shall be scheduled within the first two weeks of the month to allow enough time for laboratory analyses and report writing to comply with Special Condition 3.3.

3.1. Analyses of Fish Processing Wastes

3.1.1. Concentrations or values of the parameters listed in Special Condition 2.4 and those listed in the table below shall be determined for each fish processing waste stream. A sample of each fish processing waste stream shall be taken before the individual streams are mixed and pumped into an onshore storage tank. A sample shall consist of three replicate grab samples, taken on the day that sampling is scheduled, pooled for use as a composite sample. The detection limits specified in Table 4 shall be used in all fish processing waste stream analyses.

Table 4. Physical and Chemical Parameters to be Analyzed from Individual Samples of DAF Sludge, Precooker Water and Press Water.

Parameter	Method Detection Limit
Total Solids	10.0 mg/L
Total Volatile Solids	10.0 mg/L
5-Day BOD	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units
Density	0.01 g/mL

3.1.2. In addition to the fish processing waste stream samples taken under Special Condition 3.1.1, the permittee shall analyze samples taken from its onshore fish processing waste storage tank during the transfer of these wastes to the disposal vessel's holding tanks.

3.1.2.1. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee.

3.1.2.2. Samples described in Special Condition 3.1.2.1 shall be taken for 12 months. Samples shall be collected on the same day that samples are taken for analysis under Special Condition 3.1.1 and another sample shall be taken one week later.

3.1.2.3. The same parameters and detection limits listed in Table 4 shall be analyzed and used for the onshore storage tank composite samples. This sampling and analysis program will provide 2 samples per month for 12 months yielding 24 samples.

3.1.2.4. The permittee shall send a copy of the analytical data for the onshore storage tank samples to EPA Region IX every 3 months during the 12-month sampling period. EPA Region IX will use these results to calculate limits for the onshore storage tank fish processing wastes.

When the onshore storage tank limits are calculated, EPA Region IX will evaluate whether to amend this permit using the new limits.

3.1.3. All sampling procedures, analytical protocols, and quality control/quality assurance procedures shall be performed according to guidelines specified by EPA Region IX. The following references shall be used by the permittee:

3.1.3.1. 40 C.F.R. Part 136, EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act;

3.1.3.2. Tetra Tech, Incorporated. 1985. Summary of U.S. EPA-approved Methods, Standard Methods and Other Guidance for 301(h) Monitoring Variables. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract No. 68-01-693. Tetra Tech, Incorporated, Bellevue, Wa.; and

3.1.3.3. Environmental Protection Agency. 1987. Quality Assurance and Quality Control for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods. Office of Marine and Estuarine Protection, Washington, D.C. EPA 430/9-86-004.

3.2. Analytical Laboratory

3.2.1. Within 30 days of the effective date of this permit, the name and address of the contract laboratory or laboratories and a description of all analytical test procedures and quality assurance/quality control procedures, including detection limits being used, shall be provided for EPA Region IX approval.

3.2.2. Any potential variation or change in the designated laboratory or analytical procedures shall be reported, in writing, for EPA Region IX approval.

3.2.3. EPA Region IX may require analyses of quality control samples by any laboratories employed to comply with Special Condition 3.1 and Appendix A. Upon request, the permittee shall provide EPA Region IX with the analytical results from such samples.

3.2.4. A complete analysis of parameters, required in Special Condition 3.1, shall be made by the permittee and reported to EPA Region IX and the ASEPA whenever there is a significant change in the quality of a fish processing waste stream as determined by EPA Region IX or the ASEPA. If necessary, bioassays may be required in addition to parameter analyses.

3.3. Reporting

3.3.1. The permittee shall provide EPA Region IX, ASEPA, the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS) and the Western Pacific Regional Fishery Management Council (WPRFMC) with a report, prepared every 3 months during the permit period, that contains the following information:

3.3.1.1. Daily volumes of DAF Sludge, Precooker Water and Press Water generated at the permittee's facility and pumped into the permittee's onshore storage tanks. These volumes shall be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.2. Daily volumes of fish processing wastes disposed at the ocean disposal site. These volumes shall be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.3. Monthly fish processing waste stream analyses demonstrating that the fish processing wastes being dumped comply with the permitted limits of parameters listed in Special Condition 2.4 and a summary of the volumes of fish processing wastes disposed at the ocean site using Form 2 (see Appendix B);

3.3.1.4. The monthly amount of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams reported in pounds per month (see Forms 1 and 2).

3.3.2. Such reports, including a comparison with the permit limits as required on Forms 1 and 2, shall be submitted to EPA Region IX, ASEPA, NMFS USFWS and WPRFMC within 45 days of the end of the preceding 3-month period for which they were prepared. The reports shall be submitted within this time unless extenuating circumstances are communicated to EPA Region IX and the ASEPA in writing. In addition to a hard copy of Forms 1 and 2, the data contained on Form 1 shall be submitted to EPA Region IX on a 3.5" computer diskette in a format compatible with LOTUS version 2.2.

3.3.3. A summary report of all 3-month reports listed in Special Condition 3.3.1, including a comparisons with permit limits and a detailed discussion of the summary results, shall be submitted by the permittee to EPA and the ASEPA 45 days after the permit expires. All fish processing waste stream data shall be reported in the same format as required in Special Condition 3.3.2.

3.3.4. Upon detection of a violation of any permit condition, the permittee shall send a written notification of this violation to EPA Region IX and the ASEPA within five working days and a detailed written report of the violation shall be sent to the agencies within 15 working days. This notification shall pertain to any permit limits (defined in Special Condition 2.4) that are exceeded, violation of volume limits (defined in Table 2 under Special Condition 2.3.1), and any disposal operation that occurs outside the disposal site defined in Special Condition 2.2.

3.3.5. Eighteen months from the effective date of this special permit, the permittee shall submit a report to EPA and ASEPA on the results of suspended phase bioassay tests and reevaluation of the model used to predict the concentrations of fish processing wastes disposed at the designated site. The suspended phase bioassays shall be conducted using at least one species from each of the following three groups: Group 1 = *Mytilus* sp. (mussel), *Crassostrea* sp. (oyster), *Acartia tonsa* (copepod), or *Trypneustes* sp. (sea urchin) larvae; Group 2 = *Holmesimysis costata* (mysid shrimp) or *Penaeus vannamei* (white shrimp); and Group 3 = *Citharicthys stigmaeus* (speckled sanddab) or *Coryphaena hippurus* (dolphinfish) juveniles.

Appropriate suspended phase bioassay protocols, either protocols approved by EPA or protocols published by the American Society for Testing and Materials (ASTM), shall be followed. Suspended particulate phase bioassays shall be run using the following fish processing waste concentrations: 100%, 75%, 50%, 25%, 10%, 5%, and a control (0%). A minimum of five replicates are required per

dilution concentration. Concurrent reference toxicant tests shall be conducted when the suspended phase bioassays are run.

A sampling and testing plan shall be submitted to EPA Region IX and ASEPA by October 1, 1993 for approval before the bioassay tests are conducted. Samples for the suspended particulate phase bioassays shall be composited from the permittee's onshore storage tanks. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee. The permittee shall take samples on the following dates: November 30, 1993, February 28, 1994 and May 31, 1994. Samples shall be collected and shipped to the testing laboratory according to EPA-approved methods to ensure that the samples do not change before the bioassay tests begin. All suspended particulate phase bioassays shall be started within 10 days of sampling.

The testing plan submitted by October 1, 1993 should also include a proposal to reevaluate the disposal site model using results obtained from the new series of suspended phase bioassays. These bioassays are being required to confirm the toxicity of the fish processing wastes and to reevaluate the disposal operations based on the use of a different disposal vessel.

The bioassay and computer model confirmation report shall contain the following information:

3.3.5.1. INTRODUCTION AND PROJECT DESCRIPTION

The project description should include the following information about fish processing waste toxicity, previous bioassay test results, previous modelling at the ocean disposal site, and the design of the new bioassay tests.

3.3.5.2. MATERIALS AND METHODS

Fish processing waste sampling and sample handling procedures should be described or referenced.

References for laboratory protocols for suspended phase bioassay tests.

1) EPA-approved methods and references.

2) Test species used in each test, the supplier or collection site for each test species, and QA/QC procedures for maintaining the test species.

3) Source of seawater used in reference, control and bioassay tests.

4) Data and statistical analysis procedures.

5) Limiting Permissible Concentration (LPC) calculations.

6) Description of model selected to evaluate dispersal of fish processing wastes at the ocean disposal site. Use of this model shall be approved by EPA Region IX and ASEPA before it is used by the permittee to evaluate the fish processing waste disposal plume.

3.3.5.3. DESCRIPTION OF SAMPLING PROCEDURES

QA/QC procedures and actual sampling procedures used during fish processing waste stream sampling and handling of the samples.

3.3.5.4. FINAL RESULTS, ANALYSIS OF DATA AND DISCUSSION

1) Complete bioassay data tables and summary bioassay tables shall be furnished in the report. All data tables should be typed or produced as a computer printout.

2) The permittee shall analyze the bioassay data and calculate the LPC of the material as defined at 40 C.F.R. § 227.27(a-b).

3) The permittee shall use the LPC in the approved plume model to determine the concentration of fish processing wastes disposed at the designated ocean disposal site which complies with EPA's Ocean Dumping Criteria defined at 40 C.F.R. Parts 227 and 228.

3.3.5.5. REFERENCES

This list should include all references used in the field sampling program, laboratory protocols, LPC calculations, modelling analyses, and historical data used to evaluate the fish processing waste disposal operations at the designated ocean disposal site.

3.3.5.6. DETAILED QA/QC PLANS AND INFORMATION

The following topics should be addressed in the QA Plan:

1) QA objectives.

2) Organization, responsibilities and personnel qualifications, internal quality control checks.

3) Sampling and analytical procedures.

4) Equipment calibration and maintenance.

5) Sample custody and tracking.

6) documentation, data reduction, and reporting.

7) Data validation.

8) Performance and systems audits.

9) Corrective action.

10) Reports.

4. SPECIAL CONDITIONS - VESSEL OPERATIONS

Specifications for vessel operations are defined to limit dumping activities to the dump site identified in Special Condition 2.2 and to record all dumping activities. The permittee's fish processing wastes and fish processing wastes of other authorized permittees may be loaded into the disposal vessel together or separately.

4.1. Posting of the Permit

This permit, or a true copy thereof, shall be placed in a conspicuous place on any vessel which is used for the transportation and dumping authorized by this permit.

4.2. Vessel Identification

Every vessel engaged in the transportation of fish processing wastes for ocean disposal shall have its name and number painted in letters and numbers at least fourteen (14) inches high on both sides of the vessel. The name and number shall be kept distinctly legible always, and a vessel without such markings shall not be used to transport or dump fish processing wastes.

4.3. Determination of the Disposal Location Within the Dump Site

On each disposal trip, the master of the disposal vessel shall determine the location of the disposal operation as follows:

4.3.1. The disposal vessel, as defined under WASTE TRANSPORTER on page 1 of this permit, shall proceed directly to the center of the disposal site at the location specified in Special Condition 2.2.

4.3.2. The master of the vessel shall observe the conditions at the dump site center, noting the vessel's position (latitude and longitude), wind direction and observed surface current direction.

4.3.3. After the conditions defined in Special Condition 4.3.2 have been recorded, the master of the disposal vessel shall proceed 1.1 nautical miles up current from the center of the disposal site and record the position of the disposal vessel (latitude and longitude). This position shall be the starting point for disposal operations for each disposal trip.

4.3.4. The master of the disposal vessel shall prepare a hard copy (on 8.5 inch by 11 inch paper) of the computerized navigational plot documenting compliance with the procedures defined in Special Conditions 4.3.1 through 4.3.4. The hard copy of the computerized navigational plot for each disposal trip shall be supplied to the permittee. The permittee shall submit these hard copies of the computerized navigational plots with the 3-month reports required under Special Condition 3.3.1. The hard copies of the navigational plots shall include:

4.3.4.1. The disposal vessel's course during the entire dumping operation; and

4.3.4.2. The times and location of entry and exit from the disposal site, position and time of arrival at the center of the disposal site, position and time of arrival at the location 1.1 nautical miles up current from the disposal site, beginning and ending of dumping operations, and disposal vessel position plotted every 15 minutes while dumping operations occur.

4.3.5. The master of the disposal vessel shall sign and date each hard copy of the computerized navigational plots certifying that the hard copies are an accurate record of the disposal vessel's track for each disposal trip.

4.3.6. The master of the disposal vessel shall certify that disposal operations occurred in the manner required by the permit.

4.3.7. The procedures listed in Special Conditions 4.3.1 through 4.3.6 shall be repeated for each disposal trip.

4.4. Disposal Rate and Vessel Speed

4.4.1. The disposal vessel/barge shall discharge the material authorized by this permit beginning at the disposal location as determined by Special Condition 4.3.3. The vessel track shall be in a direction that is perpendicular to the current detected at the center of the disposal site as defined in Special Condition 2.2. Disposal shall occur in a oval shape along an axis at least 0.5 nautical miles on either side of the starting point determined in Special Condition 4.3.3. The entire disposal vessel track shall be within the disposal site boundaries.

4.4.1.1. From June 1 through November 30, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 140 gallons per minute per knot, not to exceed 1,400 gallons per minute at a maximum speed of 10 knots.

4.4.1.2. From December 1 through May 31, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 120 gallons per minute per knot, not to exceed 1,200 gallons per minute at a maximum speed of 10 knots.

4.5. Computerized Navigational System

The permittee shall use an onboard computerized electronic positioning system to fix the position of the disposal vessel accurately during all dumping operations. The computerized navigational system and the method to produce a 8.5 inch by 11 inch hard copy of each disposal trip must be approved by EPA Region IX and the USCG Liaison Office (CGLO) Pago Pago. The permittee shall submit the description, specifications and example hard copy plots for the computerized navigational system at least 15 working days before the effective date of the permit. Disposal operations shall not begin until EPA Region IX and CGLO Pago Pago provide the permittee with written approval for the computerized navigation system and the hard copy plots.

4.6. Permitted Times for Disposal Operations

Dumping operations shall be restricted to daylight hours, unless an emergency exists as defined at 40 C.F.R. § 220.1(c)(4). ASEPA and CGLO Pago Pago shall be notified immediately if an emergency exists and ocean disposal is required to protect human life at sea. No later than 5 working days after the emergency, the permittee and the waste transporter shall provide EPA Region IX, ASEPA and CGLO Pago Pago with a detailed written report on the emergency situation.

4.7. Reporting of the Ocean Dumping Vessel Operations

4.7.1. The waste transporter shall maintain and the permittee shall submit copies of a daily transportation and dumping log, including hard copy plots of all information

required in Special Conditions 4.3 and 4.7.2. Copies of the daily logs shall be sent to EPA Region IX, CGLO Pago Pago, and the ASEPA as part of the 3-month report.

4.7.2. The logbook shall contain the following information for each disposal trip:

4.7.2.1. Permit number, date and consecutive trip number;

4.7.2.2. Record of contact with ASEPA and CGLO before each trip to the ocean disposal site.

4.7.2.3. The time when loading of the vessel commences and ceases in Pago Pago Harbor;

4.7.2.4. The volume of fish processing waste loaded into the disposal vessel from each fish cannery;

4.7.2.5. The time and navigational position that dumping commences and ceases;

4.7.2.6. A record of vessel speed and direction every 15 minutes during each dumping operation at the disposal site, and a hard copy of the vessel's course defined in Special Condition 4.3;

4.7.2.7. Discharge rate from the disposal vessel.

4.7.2.8. Observe, note and plot the time and position of any floatable material;

4.7.2.9. Observe, note and plot the wind speed and direction every 30 minutes while dumping fish processing wastes at the designated disposal site;

4.7.2.10. Observe and note current direction at the beginning and end of the disposal trip, and the direction of the disposal plume at the end of the disposal operation;

4.7.2.11. Observe, note and plot the presence of the previous disposal plume and any unusual occurrences during the disposal trip, or any other information relevant to the assessment of environmental impacts as a result of dumping activities; and

4.7.2.12. Any unusual occurrences noted under Special Condition 4.7.2.9 shall be highlighted in the report defined in Special Condition 3.3.1.

5. SPECIAL CONDITIONS - DUMP SITE MONITORING

The monitoring program for disposal of fish processing wastes in the ocean must document effects of disposed wastes on the receiving waters, biota, and beneficial uses of the receiving waters; compliance with EPA's Ocean Dumping Regulations; and determine compliance with permit terms and conditions. Revisions to the monitoring program may be made under the direction of EPA Region IX at any time during the permit term, in compliance with 40 C.F.R. §§ 223.2 and 223.3. This may include a change in the number of parameters to be monitored, the

frequency of monitoring, the location of sample stations, or the number and size of samples to be collected.

Implementation of the disposal site monitoring program and all segments of the monitoring program specified in Special Condition 5 and Appendix A shall be the responsibility of the permittee.

5.1. Monitoring Program

The permittee shall conduct the monitoring program, defined in Appendix A, to determine the environmental impacts of ocean dumping of fish processing waste. If possible, monitoring cruises shall be scheduled within the first two weeks of each month to allow enough time for laboratory analysis and report writing in compliance with Special Condition 5.2. The permittee shall notify the ASEPA at least 48 hours before any scheduled monitoring activities.

5.2. Monitoring Reports

Monthly site monitoring reports shall be submitted to EPA Region IX, the ASEPA, NMFS, USFWS and WPRFMC with the 3-month reports as specified in Special Condition 3.3.2. The reports shall include: neatly compiled raw data for all sample analyses, quality assurance/quality control data, statistical analysis of sample variability between stations and within samples for each parameter, and a detailed discussion of the results.

5.3. Final Summary Report

5.3.1. A report shall be submitted to EPA Region IX, ASEPA, NMFS, USFWS and WPRFMC 60 days after the permit expires. This report shall summarize all of the data collected to characterize fish processing wastes and the results of the dump site monitoring program specified in this special permit.

5.3.2. At a minimum, the summary report shall contain the following sections:

5.3.2.1. Introduction (including a summary of previous ocean disposal activities),

5.3.2.2. Location of Sampling Sites,

5.3.2.3. Materials and Methods,

5.3.2.4. Results and Discussion (including comparisons and contrasts with previous MPRSA § 102 research and special permit data related to disposal of fish processing wastes off American Samoa),

5.3.2.5. Conclusions; and

5.3.2.6. References.

5.4. Quality Assurance/Quality Control

5.4.1. All appropriate phases of the monitoring, sampling, and laboratory analytical procedures shall comply with the EPA Region IX-specified protocols and references listed in Special Condition 3.1.2.

5.4.2. The qualifications of the on-site Principal Investigator in charge of the field monitoring operation at the dump site shall be submitted to EPA Region IX and the ASEPA for approval before the initial monitoring cruise. Notification of any change in this individual shall be submitted to EPA Region IX and ASEPA at least 7 days before the cruise is scheduled.

6. SPECIAL CONDITIONS - NOTICE TO REGULATORY AGENCIES

6.1. Notice of Sailing to the U.S. Coast Guard Liaison Office and the American Samoa Environmental Protection Agency

6.1.1. The waste transporter shall provide telephone notification of sailing to CGLO Pago Pago at 633-2299 and the ASEPA at 633-2304 during working hours (7:00 a.m. to 3:30 p.m.) no later than 24 hours before the estimated time of departure for the dump site defined in Special Condition 2.2. A record of contact with both agencies shall be reported with other information for each disposal trip.

6.1.2. The waste transporter shall immediately notify CGLO Pago Pago and the ASEPA upon any changes in the estimated time of departure greater than two hours.

6.1.3. Surveillance of activities at the dump site designated in Special Condition 2.2, may be accomplished by unannounced aerial overflights, a USCG shiprider and/or a ASEPA shiprider who will be on board the towing/conveyance vessel for the entire voyage. Within two hours after receipt of the initial notification the waste transporter will be advised whether or not a shiprider will be assigned to the waste transporter's disposal vessel.

6.1.4. The following information shall be provided to CGLO Pago Pago and the ASEPA in the notification of sailing defined above:

6.1.4.1. The time of departure,

6.1.4.2. Estimated time of arrival at the dump site,

6.1.4.3. Estimated time of departure from the dump site, and

6.1.4.4. Estimated time of return to port.

6.2. Reports and Correspondence

6.2.1. Two copies of all reports and related correspondence required by General Condition 1.10, Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, 6.1, and all other materials, including applications shall be submitted to EPA Region IX at the following address:

Office of Pacific Island and Native American Programs (E-4)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, California 94105-3901
Telephone (415) 744-1594

6.2.2. Two copies of all reports required by General Condition 1.10 and Special Conditions 4.5, 4.6, 4.7 and 6.1 sent to the U.S. Coast Guard shall be submitted to the following address:

Commanding Officer
U.S. Coast Guard Liaison Office
P.0. Box 249
Pago Pago, American Samoa 96799
Telephone (684) 633-2299

6.2.3. Three copies of all reports required by General Condition 1.10 and Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, and 6.1 sent to the American Samoa Environmental Protection Agency shall be submitted to the following address:

Director
American Samoa Environmental Protection Agency
Office of the Governor
Pago Pago, American Samoa 96799
Telephone (684) 633-2304

6.2.4. One copy of the all reports required by Special Conditions 3.3, 5.2 and 5.3 shall be sent to the USFWS, the NMFS and the WPRFMC at the following addresses:

Project Leader
Office of Environmental Services
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard
P.0. Box 50167
Honolulu, Hawaii 96850

Western Pacific Program Officer
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

Executive Director
Western Pacific Regional Fishery Management Council
1164 Bishop Street, Suite 1405
Honolulu, Hawaii 96813

Signed this _____ day of _____, 1993

For the Regional Administrator:

_____
Harry Seraydarian, Director
Water Management Division
U.S. EPA, Region IX

APPENDIX A

SPECIAL OCEAN DUMPING PERMIT OD 93-02
OCEAN DUMP SITE MONITORING PLAN

7. MONITORING OF RECEIVING WATER

Monitoring of the receiving waters at the disposal site defined in Special Condition 2.2 shall be the responsibility of the permittee. Funding and cooperation for site monitoring may be accomplished through an agreement between permittee and other permittees authorized to use the disposal site. Any agreements negotiated between the permittee and other authorized permittees shall be the sole responsibility of the permittee named in this permit. EPA Region IX requires that a monitoring program be developed that complies with the special conditions defined below.

During each monitoring cruise, the disposal plume from the disposal vessel shall be sampled by taking discrete water samples for the measurement of parameters listed in Special Condition 7.2.4. Results of the first 3-month monitoring report will be evaluated by EPA Region IX to determine whether portions of Special Conditions 7 and/or 8 will be revised. The evaluation will be based on documented sampling results and recommendations by the permittee(s).

7.1. Location of Water Sampling Stations

7.1.1. On each sampling cruise, the latitude and longitude of all sampling stations shall be determined and plotted using an acceptable navigational system.

7.1.2. The Principal Investigator shall ensure that discrete water samples are taken at the locations marked in Figure 1.

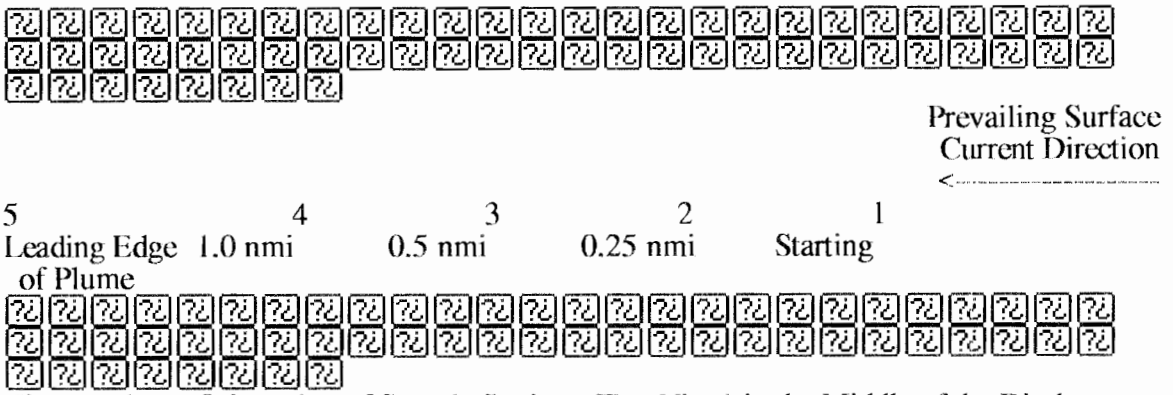

Figure 1. Orientation of Sample Stations (Top View) in the Middle of the Discharge Plume Visually Identified at the Time of Sampling.

7.1.3. The following stations, defined in Figure 1, shall be sampled on each sampling cruise:

7.1.4.1. Station 1 shall be the starting point of the dumping operation as determined in Special Condition 4.3.

7.1.4.2. Station 2 shall be 0.25 nautical miles (nmi) down-current from Station 1.

7.1.4.3. Station 3 shall be 0.5 nmi down-current from Station 1.

7.1.4.4. Station 4 shall be 1.0 nmi down-current from Station 1.

7.1.4.5. Station 5 shall be at the leading edge of the discharge plume, but within the plume.

7.1.4. The Principal Investigator shall ensure that each sampling station is positioned as close as possible to the middle of the discharge plume according to his/her best professional judgment.

7.2. Water Column Characteristics to Be Measured

7.2.1. Discrete water samples at Stations 1, 2, 3, 4, and 5 shall be taken at depths of 1, 3, and 10 meters from the surface at the middle of the plume visually identified by the Principal Investigator.

7.2.2. Surface water conditions shall be recorded at all stations including:

7.2.2.1. Wind speed and direction;

7.2.2.2. Current direction and wave height; and

7.2.2.3. Observations of plume color (e.g., Forel-Ule color scale), odor, floating materials, grease, oil, scum, and foam.

7.2.3. Water samples shall be obtained using a self-closing 3-liter water sample device at each depth listed in 7.2.1.

7.2.4. Water column parameters analyzed from discrete samples taken at the depths listed in 7.2.1 shall include:

Table 4. Physical and Chemical Parameters to be Analyzed from Water Samples Taken at the Ocean Disposal Site.

Parameter[a]	Method Detection Limit
Total Suspended Solids	10.0 mg/L
Total Volatile Suspended Solids	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units

a = Samples should be acidified to pH <2 with sulfuric acid and refrigerated a 4°C until analysis.

7.2.5. Temperature measurements shall be taken at depths of 1, 3, and 10 meters at the starting point of the disposal operation, as defined in Special Condition 4.3.3.

7.3. Frequency of Sampling

7.3.1. Water samples shall be collected when dumping operations occur. Each station listed under Special Condition 7.1 shall be sampled once each month. These samples shall be used to characterize the receiving waters at the disposal site.

7.3.2. Control samples shall be taken at Station 1 before dumping activities.

7.3.3. Station 1 shall be sampled at a point within the plume immediately after discharge operations cease.

7.3.4. Stations 2 through 5 shall be sampled consecutively at distances indicated in Special Condition 7.1.4 to allow efficient sampling of the discharge plume. The time between each sample and the sampling location, beginning with the control sample and ending with the sample collected at the leading edge of the plume, shall be recorded.

7.4. Water Quality Criteria and Standards

7.4.1. The LPC of the liquid phase of the fish processing wastes shall not be exceeded at the disposal site boundary four hours after disposal operations cease. The LPC, as defined at 40 C.F.R. §227.27,shall not exceed applicable American Samoa Oceanic Water Quality Standards (see Table 1). EPA Region IX and the ASEPA will evaluate the LPC based on EPA's Ocean Dumping Regulations and the concentration of parameters measured at the stations sampled during the tenure of this permit.

8. MONITORING OF BIOLOGICAL COMMUNITIES

8.1. Pelagic Resources

8.1.1. All sightings of fish, sea turtles, sea birds, or cetaceans near the disposal site shall be recorded including:

8.1.1.1. Time, location and bearing;

8.1.1.2. Species name(s); and

8.1.1.3. Approximate number of individuals.

Form 1

Monthly Volumes of VCS Samoa Packing Fish Processing Wastes Generated Per Day and Volumes of Fish Processing Wastes Disposed at the Ocean Site

Month _____ **19**__

OD 93-02	DAF Sludge Generated (gallons/day)	Cooker Water Generated (gallons/day)	Press Water Generated (gallons/day)	Total Generated (gallons/day)
Permit Limits	60,000	100,000	40,000	200,000

Date	DAF Sludge Generated (gallons/day)		Precooker Water Generated (gallons/day)		Press Water Generated (gallons/day)		Total Generated (gallons/day)		Volume Ocean Disposed (gallons/day)	
Monthly Totals										

NOTE: An asterisk (*) to the right of the fish processing waste volume signifies that a violation of the permit limit has occurred. The number of violations are shown in the Monthly Totals row.

Monthly quantities of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams:

Aluminum sulfate: _____ pounds/month

Coagulant polymer: _____ pounds/month

Data Form for 3-Month Report on Waste Stream Analyses for VCS Samoa Packing MPRSA § 102 Permit #OD 93-02

Reporting Period: From _____ 19__ To _____ 19__ Form 2

VCS Samoa Packing - Dissolved Air Flotation (DAF) Sludge

Month & Year	Total Solids (mg/L)	Total Volatile Solids (mg/L)	5-Day Biological Oxygen Demand (mg/L)	Oil and Grease (mg/L)	Total Phosphorus (mg/L)	Total Nitrogen (mg/L)	Ammonia (mg/L)	pH (pH units)	Density (g/mL)
OD 93-02 Permit Limits	461,790	455,560	349,350	395,700	3,790	21,820	3,470	4.8 to 7.0	0.86 to 1.05

VCS Samoa Packing - Precooker Water

Month & Year	Total Solids (mg/L)	Total Volatile Solids (mg/L)	5-Day Biological Oxygen Demand (mg/L)	Oil and Grease (mg/L)	Total Phosphorus (mg/L)	Total Nitrogen (mg/L)	Ammonia (mg/L)	pH (pH units)	Density (g/mL)
OD 93-02 Permit Limits	115,180	84,450	64,650	11,180	1,850	12,830	410	5.5 to 7.0	0.95 to 1.06

VCS Samoa Packing - Press Water

Month & Year	Total Solids (mg/L)	Total Volatile Solids (mg/L)	5-Day Biological Oxygen Demand (mg/L)	Oil and Grease (mg/L)	Total Phosphorus (mg/L)	Total Nitrogen (mg/L)	Ammonia (mg/L)	pH (pH units)	Density (g/mL)
OD 93-02 Permit Limits	381,510	409,310	365,550	164,860	2,950	35,100	830	5.5 to 7.0	0.96 to 1.06

NOTE: An asterisk (*) next to the waste concentration signifies that a violation of the permit limit has occurred.

MPRSA §102 Special Permit #OD 93-02

Reporting Period: From _____ 19__ To _____ 19__

Month & Year	DAF Sludge Generated (gallons/month)	Cooker Water Generated (gallons/month)	Press Water Generated (gallons/month)	Total Generated (gallons/month)	Aluminum sulfate (pounds/month)	Coagulant polymer (pounds/month)	Volume Ocean Disposed (gallons/month)
Cumulative Yearly Totals							

NOTE: A separate table shall be prepared for each calendar year.

StarKist Permit

MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT § 102
OCEAN DUMPING PERMIT

PERMIT NUMBER AND TYPE: OD 93-01 Special

EFFECTIVE DATE: September 1, 1993

EXPIRATION DATE: August 31, 1996

PERMITTEE:
StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

WASTE GENERATOR:
StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

WASTE GENERATED AT:
StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

PORT OF DEPARTURE: Pago Pago Harbor, American Samoa

WASTE TRANSPORTER:
FV TASMAN SEA
Blue North Fisheries, Inc.
1130 N.W. 45th Street
Seattle, Washington 98107-4626

A special ocean dumping permit is being issued to StarKist Samoa, Inc. because the Regional Administrator of EPA Region IX has determined that disposal of fish processing wastes off American Samoa meets EPA's ocean dumping criteria at 40 C.F.R. Parts 227 and 228. For this permit, the term "fish processing wastes" shall refer to Dissolved Air Flotation (DAF) Sludge, Cooker Juice and Press Liquor generated at the permittee's plant in Pago Pago, American Samoa; or any combination of the three waste streams pumped from StarKist Samoa's onshore holding tanks into the ocean disposal vessel for transportation to the ocean disposal site.

This special permit authorizes the transportation and dumping into ocean waters of fish processing wastes as described in the special conditions section pursuant to the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 (33 U.S.C. § 1401 *et seq.*) as amended (hereinafter referred to as "the Act"); regulations issued thereunder; and the terms and conditions stated below.

This MPRSA Special Permit does not contain any information collection requirements subject to Office of Management and Budget review under the Paper Work Reduction Act of 1980 (44 U.S.C. § 3501 *et seq.*). This determination has been made because the permit does not require data collection by more than 10 persons.

1. GENERAL CONDITIONS

1.1. Operation under this special ocean dumping permit shall conform to all applicable federal statutes and regulations including, but not limited to, the Act, the Marine Plastic Pollution

Research and Control Act of 1987 (P.L. 100-220), the Clean Water Act (33 U.S.C. § 1251 *et seq.*), and the Ports and Waterways Safety Act (33 U.S.C. § 1221 *et seq.*).

1.2. All transportation and dumping authorized herein shall be undertaken in a manner consistent with the terms and conditions of this permit. StarKist Samoa, Inc. (hereafter referred to as "the permittee") shall be liable for compliance with all such terms and conditions. The permittee shall be held liable under § 105 of the Act (33 U.S.C. § 1415) if any permit violations occur. During disposal operations when the permittee's fish processing wastes are loaded aboard the disposal vessel in holding tanks, either separately or combined with similar fish processing wastes from other permittees authorized to use the ocean disposal site defined in Special Condition 2.2, the permittees shall be held individually liable under § 105 of the Act (33 U.S.C. § 1415) if a permit violation occurs. If a permit violation occurs during the transportation and disposal of fish processing wastes, the waste transporter may also be liable for permit violations.

1.3. Under § 105 of the Act, any person who violates any provision of the Act, 40 C.F.R. Parts 220 through 228 promulgated thereunder, or any term or condition of this permit shall be liable for a civil penalty of not more than $50,000 per day for each violation. Additionally, any knowing violation of the Act, 40 C.F.R. Parts 220 through 228, or the permit may result in a criminal action being brought with penalties of not more than $50,000 or one year in prison, or both. Violations of the Act or the terms and conditions of this permit include but are not limited to:

1.3.1. Transportation to, and dumping at any location other than that defined in Special Condition 2.2 of this permit;

1.3.2. Transportation and dumping of any material not identified in this permit, more frequently than authorized in this permit, or more than the quantities identified in this permit, unless specifically authorized by a written modification hereto;

1.3.3. Failure to conduct permit monitoring as required in Special Conditions 3.1, 3.3.1, 4.7 and 5.1; or

1.3.4. Failure to file reports on fish processing wastes and disposal site monitoring reports as required in the Special Conditions.

1.4. Nothing contained herein shall be deemed to authorize, in any way, the transportation from the United States for the purpose of dumping into the ocean waters, the territorial sea, or the contiguous zone, the following materials:

1.4.1. High-level radioactive wastes;

1.4.2. Materials, in whatever form, produced for radiological, chemical, or biological warfare;

1.4.3. Persistent synthetic or natural materials which may float or remain in suspension in the ocean; or

1.4.4. Medical wastes as defined in § 3(k) of the Act.

1.4.5. Flotables, garbage, domestic trash, waste chemicals, solid waste, or any materials prohibited by the Act or the Marine Plastic Pollution Research and Control Act.

1.5. Nothing contained herein shall be deemed to authorize, in any way, violation of applicable American Samoa Water Quality Standards. The following water quality standards apply:

Table 1. 1989 American Samoa Water Quality Standards: Oceanic Waters [§24.0207(g)(1-7)].

Parameter	Median Not to Exceed the Given Value
Turbidity	0.20 NTU
Total Phosphorus	11.0 µg-P/L
Total Nitrogen	115.0 µg-N/L
Chlorophyll *a*	0.18 µg/L
Light Penetration Depth	150 feet, to exceed the given value 50% of the time.
Dissolved Oxygen	Not less than 80% of saturation or less than 5.5 mg/L. If the natural level of dissolved oxygen is less than 5.5 mg/L, then the natural dissolved oxygen level shall become the standard.
pH	The pH range shall be 6.5 to 8.6 pH units and within 0.2 pH units of the level which occurs naturally.

1.6. After notice and opportunity for a hearing, this permit may be revised, revoked or limited, in whole or in part, subject only to the provisions of 40 C.F.R. §§ 222.3(b) through 222.3(h) and 40 C.F.R. § 223.2, as a result of a determination by the Regional Administrator of EPA that:

1.6.1. The cumulative impact of the permittee's dumping activities or the aggregate impact of all dumping activities in the dump site designated in Special Condition 2.2 should be categorized as Impact Category I, as defined in 40 C.F.R. § 228.10(c)(1);

1.6.2. There has been a change in circumstances regarding the management of the disposal site designated in Special Condition 2.2;

1.6.3. The dumping authorized by the permit would violate applicable American Samoa Water Quality Standards;

1.6.4. The dumping authorized can no longer be carried out consistent with the criteria defined at 40 C.F.R. Parts 227 and 228;

1.6.5. The permittee violated any term or condition of the permit;

1.6.6. The permittee misrepresented, or did not disclose all relevant facts in the permit application accurately; or

1.6.7. The permittee did not keep records, engage in monitoring and reporting activities, or to notify appropriate officials in a timely manner of the transportation and dumping activities as specified in any condition of this permit.

1.7. The permittee shall ensure always that facilities, including any vessels associated with the permit, are in good working order to achieve compliance with the terms and conditions of this permit. During all loading operations, there shall not be a loss of fish processing wastes to any waterway. During transport to the disposal site, there shall not be a loss of fish processing wastes to Pago Pago Harbor or the ocean.

1.8. Any change in the designated fish processing waste transporter may be made at the discretion of the Regional Administrator or his delegate. A written request for such a transfer shall be made by the permittee at least thirty (30) days before the requested transfer date. Written approval by the EPA Regional Administrator must be obtained before such a transfer occurs.

1.9. The permittee shall allow the EPA Regional Administrator, the Commander of the Fourteenth U.S. Coast Guard District (USCG), the Director of the American Samoa Environmental Protection Agency (ASEPA), and/or their authorized representatives to:

1.9.1. Enter into, upon, or through the permittee's premises, vessels, or other premises or vessels under the control of the permittee, where, or in which, a source of material to be dumped is located or in which any records are required to be kept under the terms and conditions of this permit or the Act;

1.9.2. Have access to and copy any records required to be kept under the terms and conditions of this permit or the Act;

1.9.3. Inspect any dumping equipment, navigational system equipment, monitoring equipment or monitoring methods required in this permit;

1.9.4. Sample or require that a sample be drawn, under EPA, USCG, or ASEPA supervision, of any materials discharged or to be discharged; or

1.9.5. Inspect laboratory facilities, data, and quality control records required for compliance with any condition of this permit.

1.10. Material which is regulated by this permit may be disposed of, due to an emergency, to safeguard life at sea in locations or in a manner that does not comply with the terms of this permit. If this occurs, the permittee shall make a full report, according to the provisions of 18 U.S.C. § 1001, within 15 days to the EPA Regional Administrator, the USCG and the ASEPA describing the conditions of this emergency and the actions taken, including the location, the nature and the amount of material disposed.

1.11. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of rights, nor any infringement of Federal, State or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent required by applicable law for the activity authorized.

1.12. This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities, or, except as authorized by this permit, the conduct of any work in any navigable waters.

1.13. Unless otherwise provided for herein, all terms used in this permit shall have the meanings assigned to them by the Act or 40 C.F.R. Parts 220 through 228, issued thereunder.

2. SPECIAL CONDITIONS - DISPOSAL SITE AND FISH PROCESSING WASTE CHARACTERIZATION

Special conditions are necessary to define the length of the permit period, identify the disposal site location, describe fish processing waste streams and define maximum permitted limits for DAF Sludge, Cooker Juice and Press Liquor.

2.1. Location of the Waste Generator and Duration of the Permit

2.1.1. The material to be dumped shall consist of fish processing wastes, defined in Special Conditions 2.3 and 2.4, generated at the permittee's fish cannery in Pago Pago, American Samoa.

2.1.2. This permit shall become effective on September 1, 1993 and it shall expire three years from the effective data at midnight on August 31, 1996.

2.2. Location of Disposal Site

Disposal of fish processing wastes generated at the location defined in Special Condition 2.1.1 shall be confined to a circular area with a 1.5 nautical mile radius, centered at 14° 24.00' South latitude by 170° 38.30' West longitude.

2.3. Description of Fish Processing Wastes

2.3.1. During the term of this permit, and according to all other terms and conditions of this permit, the permittee is authorized to transport and dispose a maximum of 200,000 gallons per day of fish processing wastes pumped from a storage tank on the permittee's premises. The fish processing wastes pumped from the permittee's storage tank are authorized for disposal at the designated ocean disposal site. Fish processing wastes pumped into the permittee's onshore storage tanks shall not exceed the following amounts:

Table 2. Volumes of Fish Processing Wastes Generated Each Day by StarKist Samoa and Pumped into a Storage Tank before Loading into the Ocean Disposal Vessel.

Fish Processing Waste	Maximum Volume Generated (gallons/day)
Dissolved Air Flotation (DAF) Sludge	30,000
Cooker Juice	70,000
Press Liquor	100,000
Maximum Daily Volume Generated and Pumped into a Storage Tank before Loading into the Disposal Vessel	??

2.4. Fish Processing Waste Stream Limits

Table 3. Limits for DAF Sludge, Cooker Juice and Press Liquor.

Physical or Chemical Parameter (units)[a]	DAF Sludge	Cooker Juice	Press Liquor
Total Solids (mg/L)	163,430	114,180	327,870
Total Volatile Solids (mg/L)	136,180	63,400	292,280
5-Day BOD (mg/L)	232,320	185,150	310,790
Oil and Grease (mg/L)	64,100	11,810	112,080
Total Phosphorus (mg/L)	1,640	940	3,160
Total Nitrogen (mg/L)	7,020	7,560	20,360
Ammonia (mg/L)	1,830	690	1,390
pH (pH units)	5.3 to 7.0	5.9 to 7.0	5.8 to 7.0
Density (g/mL)	0.97 to 1.06	0.98 to 1.06	0.99 to 1.08

a = All calculated values were rounded to the nearest 10, except density and pH ranges.

2.4.2. Permitted Maximum Concentrations for each type of fish processing waste stream were calculated based on an analysis of historical data from the permittee's previous Special Ocean Dumping Permit, number OD 90-01. The calculations followed EPA's recommended procedure for determining permit limits as defined in the EPA document titled: "Guidance Document for Ocean Dumping Permit Writers" (January 30, 1988). EPA Region IX will periodically review these limits during the permit to evaluate the accuracy of the limits. If revisions are necessary, EPA Region IX will make changes according to the authority defined in the Ocean Dumping Regulations at 40 C.F.R §§ 223.2 through 223.5.

2.4.3. The Permitted Maximum Concentrations, density range and pH range listed above, shall not be exceeded at any time during the term of this permit.

3. SPECIAL CONDITIONS - ANALYSIS OF FISH PROCESSING WASTES

Compliance with the permitted maximum concentrations defined in Special Condition 2.4 shall be determined by monthly monitoring of **each of the fish processing waste streams**. Additional analyses of fish processing wastes and reporting requirements are defined in this section. Any fish processing waste stream sampling dates shall be scheduled within the first two weeks of the month to allow enough time for laboratory analyses and report writing to comply with Special Condition 3.3.

3.1. Analyses of Fish Processing Wastes

3.1.1. Concentrations or values of the parameters listed in Special Condition 2.4 and those listed in the table below shall be determined for each fish processing waste stream. A sample of each fish processing waste stream shall be taken before the individual streams are mixed and pumped into an onshore storage tank. A sample shall consist of three replicate grab samples, taken on the day that sampling is scheduled, pooled for use as a composite sample. The detection limits specified in Table 4 shall be used in all fish processing waste stream analyses.

Table 4. Physical and Chemical Parameters to be Analyzed from Individual Samples of DAF Sludge, Cooker Juice and Press Liquor.

Parameter	Method Detection Limit
Total Solids	10.0 mg/L
Total Volatile Solids	10.0 mg/L
5-Day BOD	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units
Density	0.01 g/mL

3.1.2. In addition to the fish processing waste stream samples taken under Special Condition 3.1.1, the permittee shall analyze samples taken from its onshore fish processing waste storage tank during the transfer of these wastes to the disposal vessel's holding tanks.

3.1.2.1. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee.

3.1.2.2. Samples described in Special Condition 3.1.2.1 shall be taken for 12 months. Samples shall be collected on the same day that samples are taken for analysis under Special Condition 3.1.1 and another sample shall be taken one week later.

3.1.2.3. The same parameters and detection limits listed in Table 4 shall be analyzed and used for the onshore storage tank composite samples. This sampling and analysis program will provide 2 samples per month for 12 months yielding 24 samples.

3.1.2.4. The permittee shall send a copy of the analytical data for the onshore storage tank samples to EPA Region IX every 3 months during the 12-month sampling period. EPA Region IX will use these results to calculate limits for the onshore storage tank fish processing wastes.

When the onshore storage tank limits are calculated, EPA Region IX will evaluate whether to amend this permit using the new limits.

3.1.3. All sampling procedures, analytical protocols, and quality control/quality assurance procedures shall be performed according to guidelines specified by EPA Region IX. The following references shall be used by the permittee:

3.1.3.1. 40 C.F.R. Part 136, EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act;

3.1.3.2. Tetra Tech, Incorporated. 1985. Summary of U.S. EPA-approved Methods, Standard Methods and Other Guidance for 301(h) Monitoring Variables. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract No. 68-01-693. Tetra Tech, Incorporated, Bellevue, Wa.; and

3.1.3.3. Environmental Protection Agency. 1987. Quality Assurance and Quality Control for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods. Office of Marine and Estuarine Protection, Washington, D.C. EPA 430/9-86-004.

3.2. Analytical Laboratory

3.2.1. Within 30 days of the effective date of this permit, the name and address of the contract laboratory or laboratories and a description of all analytical test procedures and quality assurance/quality control procedures, including detection limits being used, shall be provided for EPA Region IX approval.

3.2.2. Any potential variation or change in the designated laboratory or analytical procedures shall be reported, in writing, for EPA Region IX approval.

3.2.3. EPA Region IX may require analyses of quality control samples by any laboratories employed to comply with Special Condition 3.1 and Appendix A. Upon request, the permittee shall provide EPA Region IX with the analytical results from such samples.

3.2.4. A complete analysis of parameters, required in Special Condition 3.1, shall be made by the permittee and reported to EPA Region IX and the ASEPA whenever there is a significant change in the quality of a fish processing waste stream as determined by EPA Region IX or the ASEPA. If necessary, bioassays may be required in addition to parameter analyses.

3.3. Reporting

3.3.1. The permittee shall provide EPA Region IX, ASEPA, the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS) and the Western Pacific Regional Fishery Management Council (WPRFMC) with a report, prepared every 3 months during the permit period, that contains the following information:

3.3.1.1. Daily volumes of DAF Sludge, Cooker Juice and Press Liquor generated at the permittee's facility and pumped into the permittee's onshore storage tanks. These volumes shall be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.2. Daily volumes of fish processing wastes disposed at the ocean disposal site. These volumes shall be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.3. Monthly fish processing waste stream analyses demonstrating that the fish processing wastes being dumped comply with the permitted limits of parameters listed in Special Condition 2.4 and a summary of the volumes of fish processing wastes disposed at the ocean site using Form 2 (see Appendix B);

3.3.1.4. The monthly amount of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams reported in pounds per month (see Forms 1 and 2).

3.3.2. Such reports, including a comparison with the permit limits as required on Forms 1 and 2, shall be submitted to EPA Region IX, ASEPA, NMFS USFWS and WPRFMC within 45 days of the end of the preceding 3-month period for which they were prepared. The reports shall be submitted within this time unless extenuating circumstances are communicated to EPA Region IX and the ASEPA in writing. In addition to a hard copy of Forms 1 and 2, the data contained on Form 1 shall be submitted to EPA Region IX on a 3.5" computer diskette in a format compatible with LOTUS version 2.2.

3.3.3. A summary report of all 3-month reports listed in Special Condition 3.3.1, including a comparisons with permit limits and a detailed discussion of the summary results, shall be submitted by the permittee to EPA and the ASEPA 45 days after the permit expires. All fish processing waste stream data shall be reported in the same format as required in Special Condition 3.3.2.

3.3.4. Upon detection of a violation of any permit condition, the permittee shall send a written notification of this violation to EPA Region IX and the ASEPA within five working days and a detailed written report of the violation shall be sent to the agencies within 15 working days. This notification shall pertain to any permit limits (defined in Special Condition 2.4) that are exceeded, violation of volume limits (defined in Table 2 under Special Condition 2.3.1), and any disposal operation that occurs outside the disposal site defined in Special Condition 2.2.

3.3.5. Eighteen months from the effective date of this special permit, the permittee shall submit a report to EPA and ASEPA on the results of suspended phase bioassay tests and reevaluation of the model used to predict the concentrations of fish processing wastes disposed at the designated site. The suspended phase bioassays shall be conducted using at least one species from each of the following three groups: Group 1 = *Mytilus* sp. (mussel), *Crassostrea* sp. (oyster), *Acartia tonsa* (copepod), or *Trypneustes* sp. (sea urchin) larvae; Group 2 = *Holmesimysis costata* (mysid shrimp) or *Penaeus vannamei* (white shrimp); and Group 3 = *Citharicthys stigmaeus* (speckled sanddab) or *Coryphaena hippurus* (dolphinfish) juveniles.

Appropriate suspended phase bioassay protocols, either protocols approved by EPA or protocols published by the American Society for Testing and Materials (ASTM), shall be followed. Suspended particulate phase bioassays shall be run using the following fish processing waste concentrations: 100%, 75%, 50%, 25%, 10%, 5%, and a control (0%). A minimum of five replicates are required per

dilution concentration. Concurrent reference toxicant tests shall be conducted when the suspended phase bioassays are run.

A sampling and testing plan shall be submitted to EPA Region IX and ASEPA by October 1, 1993 for approval before the bioassay tests are conducted. Samples for the suspended particulate phase bioassays shall be composited from the permittee's onshore storage tanks. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee. The permittee shall take samples on the following dates: November 30, 1993, February 28, 1994 and May 31, 1994. Samples shall be collected and shipped to the testing laboratory according to EPA-approved methods to ensure that the samples do not change before the bioassay tests begin. All suspended particulate phase bioassays shall be started within 10 days of sampling.

The testing plan submitted by October 1, 1993 should also include a proposal to reevaluate the disposal site model using results obtained from the new series of suspended phase bioassays. These bioassays are being required to confirm the toxicity of the fish processing wastes and to reevaluate the disposal operations based on the use of a different disposal vessel.

The bioassay and computer model confirmation report shall contain the following information:

3.3.5.1. INTRODUCTION AND PROJECT DESCRIPTION

The project description should include the following information about fish processing waste toxicity, previous bioassay test results, previous modelling at the ocean disposal site, and the design of the new bioassay tests.

3.3.5.2. MATERIALS AND METHODS

Fish processing waste sampling and sample handling procedures should be described or referenced.

References for laboratory protocols for suspended phase bioassay tests.

1) EPA-approved methods and references.

2) Test species used in each test, the supplier or collection site for each test species, and QA/QC procedures for maintaining the test species.

3) Source of seawater used in reference, control and bioassay tests.

4) Data and statistical analysis procedures.

5) Limiting Permissible Concentration (LPC) calculations.

6) Description of model selected to evaluate dispersal of fish processing wastes at the ocean disposal site. Use of this model shall be approved by EPA Region IX and ASEPA before it is used by the permittee to evaluate the fish processing waste disposal plume.

3.3.5.3. DESCRIPTION OF SAMPLING PROCEDURES

QA/QC procedures and actual sampling procedures used during fish processing waste stream sampling and handling of the samples.

3.3.5.4. FINAL RESULTS, ANALYSIS OF DATA AND DISCUSSION

1) Complete bioassay data tables and summary bioassay tables shall be furnished in the report. All data tables should be typed or produced as a computer printout.

2) The permittee shall analyze the bioassay data and calculate the LPC of the material as defined at 40 C.F.R. § 227.27(a-b).

3) The permittee shall use the LPC in the approved plume model to determine the concentration of fish processing wastes disposed at the designated ocean disposal site which complies with EPA's Ocean Dumping Criteria defined at 40 C.F.R. Parts 227 and 228.

3.3.5.5. REFERENCES

This list should include all references used in the field sampling program, laboratory protocols, LPC calculations, modelling analyses, and historical data used to evaluate the fish processing waste disposal operations at the designated ocean disposal site.

3.3.5.6. DETAILED QA/QC PLANS AND INFORMATION

The following topics should be addressed in the QA Plan:

1) QA objectives.

2) Organization, responsibilities and personnel qualifications, internal quality control checks.

3) Sampling and analytical procedures.

4) Equipment calibration and maintenance.

5) Sample custody and tracking.

6) documentation, data reduction, and reporting.

7) Data validation.

8) Performance and systems audits.

9) Corrective action.

10) Reports.

4. SPECIAL CONDITIONS - VESSEL OPERATIONS

Specifications for vessel operations are defined to limit dumping activities to the dump site identified in Special Condition 2.2 and to record all dumping activities. The permittee's fish processing wastes and fish processing wastes of other authorized permittees may be loaded into the disposal vessel together or separately.

4.1. Posting of the Permit

This permit, or a true copy thereof, shall be placed in a conspicuous place on any vessel which is used for the transportation and dumping authorized by this permit.

4.2. Vessel Identification

Every vessel engaged in the transportation of fish processing wastes for ocean disposal shall have its name and number painted in letters and numbers at least fourteen (14) inches high on both sides of the vessel. The name and number shall be kept distinctly legible always, and a vessel without such markings shall not be used to transport or dump fish processing wastes.

4.3. Determination of the Disposal Location Within the Dump Site

On each disposal trip, the master of the disposal vessel shall determine the location of the disposal operation as follows:

4.3.1. The disposal vessel, as defined under WASTE TRANSPORTER on page 1 of this permit, shall proceed directly to the center of the disposal site at the location specified in Special Condition 2.2.

4.3.2. The master of the vessel shall observe the conditions at the dump site center, noting the vessel's position (latitude and longitude), wind direction and observed surface current direction.

4.3.3. After the conditions defined in Special Condition 4.3.2 have been recorded, the master of the disposal vessel shall proceed 1.1 nautical miles up current from the center of the disposal site and record the position of the disposal vessel (latitude and longitude). This position shall be the starting point for disposal operations for each disposal trip.

4.3.4. The master of the disposal vessel shall prepare a hard copy (on 8.5 inch by 11 inch paper) of the computerized navigational plot documenting compliance with the procedures defined in Special Conditions 4.3.1 through 4.3.4. The hard copy of the computerized navigational plot for each disposal trip shall be supplied to the permittee. The permittee shall submit these hard copies of the computerized navigational plots with the 3-month reports required under Special Condition 3.3.1. The hard copies of the navigational plots shall include:

4.3.4.1. The disposal vessel's course during the entire dumping operation; and

4.3.4.2. The times and location of entry and exit from the disposal site, position and time of arrival at the center of the disposal site, position and time of arrival at the location 1.1 nautical miles up current from the disposal site, beginning and ending of dumping operations, and disposal vessel position plotted every 15 minutes while dumping operations occur.

4.3.5. The master of the disposal vessel shall sign and date each hard copy of the computerized navigational plots certifying that the hard copies are an accurate record of the disposal vessel's track for each disposal trip.

4.3.6. The master of the disposal vessel shall certify that disposal operations occurred in the manner required by the permit.

4.3.7. The procedures listed in Special Conditions 4.3.1 through 4.3.6 shall be repeated for each disposal trip.

4.4. Disposal Rate and Vessel Speed

4.4.1. The disposal vessel/barge shall discharge the material authorized by this permit beginning at the disposal location as determined by Special Condition 4.3.3. The vessel track shall be in a direction that is perpendicular to the current detected at the center of the disposal site as defined in Special Condition 2.2. Disposal shall occur in a oval shape along an axis at least 0.5 nautical miles on either side of the starting point determined in Special Condition 4.3.3. The entire disposal vessel track shall be within the disposal site boundaries.

4.4.1.1. From June 1 through November 30, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 140 gallons per minute per knot, not to exceed 1,400 gallons per minute at a maximum speed of 10 knots.

4.4.1.2. From December 1 through May 31, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 120 gallons per minute per knot, not to exceed 1,200 gallons per minute at a maximum speed of 10 knots.

4.5. Computerized Navigational System

The permittee shall use an onboard computerized electronic positioning system to fix the position of the disposal vessel accurately during all dumping operations. The computerized navigational system and the method to produce a 8.5 inch by 11 inch hard copy of each disposal trip must be approved by EPA Region IX and the USCG Liaison Office (CGLO) Pago Pago. The permittee shall submit the description, specifications and example hard copy plots for the computerized navigational system at least 15 working days before the effective date of the permit. Disposal operations shall not begin until EPA Region IX and CGLO Pago Pago provide the permittee with written approval for the computerized navigation system and the hard copy plots.

4.6. Permitted Times for Disposal Operations

Dumping operations shall be restricted to daylight hours, unless an emergency exists as defined at 40 C.F.R. § 220.1(c)(4). ASEPA and CGLO Pago Pago shall be notified immediately if an emergency exists and ocean disposal is required to protect human life at sea. No later than 5 working days after the emergency, the permittee and the waste transporter shall provide EPA Region IX, ASEPA and CGLO Pago Pago with a detailed written report on the emergency situation.

4.7. Reporting of the Ocean Dumping Vessel Operations

4.7.1. The waste transporter shall maintain and the permittee shall submit copies of a daily transportation and dumping log, including hard copy plots of all information

required in Special Conditions 4.3 and 4.7.2. Copies of the daily logs shall be sent to EPA Region IX, CGLO Pago Pago, and the ASEPA as part of the 3-month report.

4.7.2. The logbook shall contain the following information for each disposal trip:

4.7.2.1. Permit number, date and consecutive trip number;

4.7.2.2. Record of contact with ASEPA and CGLO before each trip to the ocean disposal site.

4.7.2.3. The time when loading of the vessel commences and ceases in Pago Pago Harbor;

4.7.2.4. The volume of fish processing waste loaded into the disposal vessel from each fish cannery;

4.7.2.5. The time and navigational position that dumping commences and ceases;

4.7.2.6. A record of vessel speed and direction every 15 minutes during each dumping operation at the disposal site, and a hard copy of the vessel's course defined in Special Condition 4.3;

4.7.2.7. Discharge rate from the disposal vessel.

4.7.2.8. Observe, note and plot the time and position of any floatable material;

4.7.2.9. Observe, note and plot the wind speed and direction every 30 minutes while dumping fish processing wastes at the designated disposal site;

4.7.2.10. Observe and note current direction at the beginning and end of the disposal trip, and the direction of the disposal plume at the end of the disposal operation;

4.7.2.11. Observe, note and plot the presence of the previous disposal plume and any unusual occurrences during the disposal trip, or any other information relevant to the assessment of environmental impacts as a result of dumping activities; and

4.7.2.12. Any unusual occurrences noted under Special Condition 4.7.2.9 shall be highlighted in the report defined in Special Condition 3.3.1.

5. SPECIAL CONDITIONS - DUMP SITE MONITORING

The monitoring program for disposal of fish processing wastes in the ocean must document effects of disposed wastes on the receiving waters, biota, and beneficial uses of the receiving waters; compliance with EPA's Ocean Dumping Regulations; and determine compliance with permit terms and conditions. Revisions to the monitoring program may be made under the direction of EPA Region IX at any time during the permit term, in compliance with 40 C.F.R. §§ 223.2 and 223.3. This may include a change in the number of parameters to be monitored, the

frequency of monitoring, the location of sample stations, or the number and size of samples to be collected.

Implementation of the disposal site monitoring program and all segments of the monitoring program specified in Special Condition 5 and Appendix A shall be the responsibility of the permittee.

5.1. Monitoring Program

The permittee shall conduct the monitoring program, defined in Appendix A, to determine the environmental impacts of ocean dumping of fish processing waste. If possible, monitoring cruises shall be scheduled within the first two weeks of each month to allow enough time for laboratory analysis and report writing in compliance with Special Condition 5.2. The permittee shall notify the ASEPA at least 48 hours before any scheduled monitoring activities.

5.2. Monitoring Reports

Monthly site monitoring reports shall be submitted to EPA Region IX, the ASEPA, NMFS, USFWS and WPRFMC with the 3-month reports as specified in Special Condition 3.3.2. The reports shall include: neatly compiled raw data for all sample analyses, quality assurance/quality control data, statistical analysis of sample variability between stations and within samples for each parameter, and a detailed discussion of the results.

5.3. Final Summary Report

5.3.1. A report shall be submitted to EPA Region IX, ASEPA, NMFS, USFWS and WPRFMC 60 days after the permit expires. This report shall summarize all of the data collected to characterize fish processing wastes and the results of the dump site monitoring program specified in this special permit.

5.3.2. At a minimum, the summary report shall contain the following sections:

5.3.2.1. Introduction (including a summary of previous ocean disposal activities),

5.3.2.2. Location of Sampling Sites,

5.3.2.3. Materials and Methods,

5.3.2.4. Results and Discussion (including comparisons and contrasts with previous MPRSA § 102 research and special permit data related to disposal of fish processing wastes off American Samoa),

5.3.2.5. Conclusions; and

5.3.2.6. References.

5.4. Quality Assurance/Quality Control

5.4.1. All appropriate phases of the monitoring, sampling, and laboratory analytical procedures shall comply with the EPA Region IX-specified protocols and references listed in Special Condition 3.1.2.

5.4.2. The qualifications of the on-site Principal Investigator in charge of the field monitoring operation at the dump site shall be submitted to EPA Region IX and the ASEPA for approval before the initial monitoring cruise. Notification of any change in this individual shall be submitted to EPA Region IX and ASEPA at least 7 days before the cruise is scheduled.

6. SPECIAL CONDITIONS - NOTICE TO REGULATORY AGENCIES

6.1. Notice of Sailing to the U.S. Coast Guard Liaison Office and the American Samoa Environmental Protection Agency

6.1.1. The waste transporter shall provide telephone notification of sailing to CGLO Pago Pago at 633-2299 and the ASEPA at 633-2304 during working hours (7:00 a.m. to 3:30 p.m.) no later than 24 hours before the estimated time of departure for the dump site defined in Special Condition 2.2. A record of contact with both agencies shall be reported with other information for each disposal trip.

6.1.2. The waste transporter shall immediately notify CGLO Pago Pago and the ASEPA upon any changes in the estimated time of departure greater than two hours.

6.1.3. Surveillance of activities at the dump site designated in Special Condition 2.2, may be accomplished by unannounced aerial overflights, a USCG shiprider and/or a ASEPA shiprider who will be on board the towing/conveyance vessel for the entire voyage. Within two hours after receipt of the initial notification the waste transporter will be advised whether or not a shiprider will be assigned to the waste transporter's disposal vessel.

6.1.4. The following information shall be provided to CGLO Pago Pago and the ASEPA in the notification of sailing defined above:

6.1.4.1. The time of departure,

6.1.4.2. Estimated time of arrival at the dump site,

6.1.4.3. Estimated time of departure from the dump site, and

6.1.4.4. Estimated time of return to port.

6.2. Reports and Correspondence

6.2.1. Two copies of all reports and related correspondence required by General Condition 1.10, Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, 6.1, and all other materials, including applications shall be submitted to EPA Region IX at the following address:

Office of Pacific Island and Native American Programs (E-4)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, California 94105-3901
Telephone (415) 744-1594

6.2.2. Two copies of all reports required by General Condition 1.10 and Special Conditions 4.5, 4.6, 4.7 and 6.1 sent to the U.S. Coast Guard shall be submitted to the following address:

Commanding Officer
U.S. Coast Guard Liaison Office
P.0. Box 249
Pago Pago, American Samoa 96799
Telephone (684) 633-2299

6.2.3. Three copies of all reports required by General Condition 1.10 and Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, and 6.1 sent to the American Samoa Environmental Protection Agency shall be submitted to the following address:

Director
American Samoa Environmental Protection Agency
Office of the Governor
Pago Pago, American Samoa 96799
Telephone (684) 633-2304

6.2.4. One copy of the all reports required by Special Conditions 3.3, 5.2 and 5.3 shall be sent to the USFWS, the NMFS and the WPRFMC at the following addresses:

Project Leader
Office of Environmental Services
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard
P.0. Box 50167
Honolulu, Hawaii 96850

Western Pacific Program Officer
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

Executive Director
Western Pacific Regional Fishery Management Council
1164 Bishop Street, Suite 1405
Honolulu, Hawaii 96813

Signed this _____ day of _____, 1993

For the Regional Administrator:

_____
Harry Seraydarian, Director
Water Management Division
U.S. EPA, Region IX

APPENDIX A

SPECIAL OCEAN DUMPING PERMIT OD 93-01
OCEAN DUMP SITE MONITORING PLAN

7. MONITORING OF RECEIVING WATER

Monitoring of the receiving waters at the disposal site defined in Special Condition 2.2 shall be the responsibility of the permittee. Funding and cooperation for site monitoring may be accomplished through an agreement between permittee and other permittees authorized to use the disposal site. Any agreements negotiated between the permittee and other authorized permittees shall be the sole responsibility of the permittee named in this permit. EPA Region IX requires that a monitoring program be developed that complies with the special conditions defined below.

During each monitoring cruise, the disposal plume from the disposal vessel shall be sampled by taking discrete water samples for the measurement of parameters listed in Special Condition 7.2.4. Results of the first 3-month monitoring report will be evaluated by EPA Region IX to determine whether portions of Special Conditions 7 and/or 8 will be revised. The evaluation will be based on documented sampling results and recommendations by the permittee(s).

7.1. Location of Water Sampling Stations

7.1.1. On each sampling cruise, the latitude and longitude of all sampling stations shall be determined and plotted using an acceptable navigational system.

7.1.2. The Principal Investigator shall ensure that discrete water samples are taken at the locations marked in Figure 1.

Figure 1. Orientation of Sample Stations (Top View) in the Middle of the Discharge Plume Visually Identified at the Time of Sampling.

7.1.3. The following stations, defined in Figure 1, shall be sampled on each sampling cruise:

7.1.4.1. Station 1 shall be the starting point of the dumping operation as determined in Special Condition 4.3.

7.1.4.2. Station 2 shall be 0.25 nautical miles (nmi) down-current from Station 1.

7.1.4.3. Station 3 shall be 0.5 nmi down-current from Station 1.

7.1.4.4. Station 4 shall be 1.0 nmi down-current from Station 1.

7.1.4.5. Station 5 shall be at the leading edge of the discharge plume, but within the plume.

7.1.4. The Principal Investigator shall ensure that each sampling station is positioned as close as possible to the middle of the discharge plume according to his/her best professional judgment.

7.2. Water Column Characteristics to Be Measured

7.2.1. Discrete water samples at Stations 1, 2, 3, 4, and 5 shall be taken at depths of 1, 3, and 10 meters from the surface at the middle of the plume visually identified by the Principal Investigator.

7.2.2. Surface water conditions shall be recorded at all stations including:

7.2.2.1. Wind speed and direction;

7.2.2.2. Current direction and wave height; and

7.2.2.3. Observations of plume color (e.g., Forel-Ule color scale), odor, floating materials, grease, oil, scum, and foam.

7.2.3. Water samples shall be obtained using a self-closing 3-liter water sample device at each depth listed in 7.2.1.

7.2.4. Water column parameters analyzed from discrete samples taken at the depths listed in 7.2.1 shall include:

Table 4. Physical and Chemical Parameters to be Analyzed from Water Samples Taken at the Ocean Disposal Site.

Parameter[a]	Method Detection Limit
Total Suspended Solids	10.0 mg/L
Total Volatile Suspended Solids	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units

a = Samples should be acidified to pH <2 with sulfuric acid and refrigerated a 4°C until analysis.

7.2.5. Temperature measurements shall be taken at depths of 1, 3, and 10 meters at the starting point of the disposal operation, as defined in Special Condition 4.3.3.

7.3. Frequency of Sampling

7.3.1. Water samples shall be collected when dumping operations occur. Each station listed under Special Condition 7.1 shall be sampled once each month. These samples shall be used to characterize the receiving waters at the disposal site.

7.3.2. Control samples shall be taken at Station 1 before dumping activities.

7.3.3. Station 1 shall be sampled at a point within the plume immediately after discharge operations cease.

7.3.4. Stations 2 through 5 shall be sampled consecutively at distances indicated in Special Condition 7.1.4 to allow efficient sampling of the discharge plume. The time between each sample and the sampling location, beginning with the control sample and ending with the sample collected at the leading edge of the plume, shall be recorded.

7.4. Water Quality Criteria and Standards

7.4.1. The LPC of the liquid phase of the fish processing wastes shall not be exceeded at the disposal site boundary four hours after disposal operations cease. The LPC, as defined at 40 C.F.R. §227.27,shall not exceed applicable American Samoa Oceanic Water Quality Standards (see Table 1). EPA Region IX and the ASEPA will evaluate the LPC based on EPA's Ocean Dumping Regulations and the concentration of parameters measured at the stations sampled during the tenure of this permit.

8. MONITORING OF BIOLOGICAL COMMUNITIES

8.1. Pelagic Resources

8.1.1. All sightings of fish, sea turtles, sea birds, or cetaceans near the disposal site shall be recorded including:

8.1.1.1. Time, location and bearing;

8.1.1.2. Species name(s); and

8.1.1.3. Approximate number of individuals.